Regional Representatives Group
Regional Transmission Problems and Opportunities List
Organized by General Categories - Update and Accompanying Notes

Introductory Note: Any statement of a consensus that a regional problem or opportunity exists is not an indication that a particular transmission provider agrees that the problem exists on its own system or has a duty or responsibility under tariff, law, or regulation to correct the problem. In addition, a consensus that a problem warrants action does not signify what that action might be, if any, how that action might be taken, or what entity might be responsible for implementing the action.

A. Concerns About Current Market/Economic Factors:

1. Underutilized capacity (in view of current demand for capacity).

Summary of Discussion:

This is an area that merits close attention; currently not everyone is able to obtain desired transmission service (particular concerns with long-term firm and with short-term service).

The current rules underutilize transmission capacity:

> Failure to use existing capacity can be seen as a problem, especially if the region experiences reliability issues or implements costly alternatives to provide needed capacity (e.g., expansion).
>
> In the alternative, the ability to change rules to access this capacity can be seen as an opportunity.

Rules relating to the following contribute to the problem: congestion management, calculation of ATC, redispatch, scheduling, operating the system on a contract path, bilateral transaction basis.

Specific examples of the underutilized capacity problem included the West of Hatwai and the Montana to Northwest lines. Concerns about these problems have led to the current discussions regarding Bonneville's ATC process.

Another example of problems from current rules for calculating and selling is their effect on new generation projects. A generation project that needs long-term firm rights to secure financing cannot be able to obtain those rights when there is no long-term ATC. Even though the needed capacity may be available most of the hours of the year, if it is not available for every hour of the year, a generator cannot obtain firm transmission rights under the tariff. The generation project may be economic even if it can't get service for every hour of the year, or may be willing pay for redispatch during hours when transmission is not otherwise available, but these transmission options are not available to meet the project's need. When the lack of firm rights becomes a

barrier to generators obtaining project financing, it is also a barrier to new generation entering the market.

Some parties still have questions regarding the magnitude of the problem (how much, how often) and the group acknowledged a need for those who have first-hand knowledge to educate others.

Consensus: This is a problem (opportunity) that warrants action, although there is a need for those who understand the magnitude of the problem to educate those who do not. The issues listed above are among the areas that should be explored for "solution sets".

2. Market power issues (transmission system, wholesale electricity markets, and ancillary services).

Summary of Discussion:

The RRG agreed to split this category into two subcategories – market design and market mitigation.

a. Market Design.

Within the Western Interconnection, structure and design of current systems provides opportunities for abuse of market power and gaming.

> The Northwest has seams issues with California now. The California ISO has a market-based system. Seams arise from the lack of consistent rules and price transparency.

While abuse of market power is more likely to occur in a stressed system, some parties believe it may be happening now. Currently, there is not a mechanism to fix design and market structure issues. Another area for potential improvement is better tools for resource operators to hedge replacement energy costs related to long-term forced outages.

Also, there are market power issues where there are developing competitive markets (*e.g.*, ancillary services).

Consensus: These are problems that warrant action. The issues listed above are among the areas that should be explored for "solution sets".

b. Market Mitigation

The RRG agreed that market mitigation issues need further definition.

Some participants expressed their preference that the region look at full spectrum of possible solutions with respect to market power issues, not just automatically jump to a "big" solution. At the same time, others felt we need to deal with possible problems before we are in trouble again.

The following is a list of some of the specific areas of concern:

(i) Need ability to detect and correct abuses (including effective data gathering and enforcement tools).

(ii) Need for comprehensive view of all products (transmission, energy, and ancillary services) and how they are affecting each other.

(iii) Ability to address problems proactively rather than after-the-fact (creating incentives not to abuse market power).

(iv) Need for equitable mitigation measures and in-region approach to mitigation.

(v) Jurisdictional differences (some entities are regulated by FERC and by state PUCs, some entities are governed by state or federal statutes, and some entities are subject to Canadian regulatory provisions).

(v) Need for an independent entity to address market power issues.

3. Access and Service Issues.

Summary of Discussion:

The RRG felt it would be helpful to distinguish between issues that arise in connection with new service requests (the ability to "get on the highway") versus issues that come up in connection with operations or the "rules of the road" for customers that are receiving transmission service. This list of issues and sub-issues below are those identified by the RRG.

a. Issues Related to Interconnection/Integration Process (New Service Requests).

(i) Cumbersome process for system users to gain access (interconnection and transmission service – bundled or unbundled); including access for load-serving entities behind other utilities' systems over dual-use facilities.

(ii) Generator interconnection queuing process is an "administrative nightmare."

(iii) Renewables – how can they more easily interconnect with and use the transmission grid?

(iv) Lack of effective mechanisms for service and study coordination between transmission providers/systems.

b. Issues Related to System Operation and Rules Governing Transmission Service.

(i) Different "rules of the road" for and treatment of generators that are part of vertically integrated utility systems versus other generators (QFs/co-gens, IPPs):

(1) Not all generators obtain service on the same terms and conditions.

(2) Different application of penalties; *e.g.*, independent generators have to buy imbalance and pay penalties, but utilities that operate control areas can "exchange" inadvertent interchange.

(3) Inequitable treatment concerning RAS requirements.

(4) QF/co-gen problems are not always the same as those for IPPs.

(ii) Different "rules of the road" for and treatment of loads that are end-use customers of vertically integrated utility systems versus other types of wholesale and retail load customers (full requirements, TDUs, unbundled versus bundled end users):

(1) Asymmetry in obligations of different types of suppliers (transmission providers with state-imposed obligation to serve).

(2) Different sources of obligations (contracts, state laws and regulations, federal laws and regulations).

(3) Inequitable treatment concerning RAS requirements (response by loads to support transfer capability or reliability).

(4) Inequitable treatment in service to unbundled retail customers compared to bundled retail customer charges.

(5) Different treatment regarding penalties for similar actions.

Consensus: These are issues to bear in mind as we explore possible solutions sets. Some participants were not sure if all of the issues identified above are within the

province of a transmission provider to address. Some participants also wondered whether FERC's recently issued NOPRs on generator interconnection might resolve some of the issues identified above.

4. Problems and Opportunities Related to Information, Incentives, and Administrative Hurdles that Affect Development of Infrastructure.

Summary of Discussion:

The RRG concluded that it would be helpful to separate the issues identified under this heading into two distinct areas: (a) those related to information, incentives, and cost recovery as they affect use and development of the transmission system; and (b) those that arise as a result of the need for many transactions to be arranged through multiple transmission providers and systems. Some participants also urged that is was important to consider both (and distinguish between) wholesale energy price issues and transmission price issues.

There was some sensitivity concerning how these issues are labeled because some participants felt it was important that we not assume in advance that prices (or particular types of price signals) are the only way to address these problems or provide a complete solution, or that "better" prices automatically lead to better outcomes.

At least one participant questioned whether it was appropriate to assume, even if some circumstances are not producing the most efficient outcomes, that economic efficiency is the "be-all and end-all" goal for how we develop solutions related to the regional transmission system. Another participant questioned whether there will be problems of equity if improvement for some comes at the expense of others. There were also some participants who expressed general concerns about practical implications of efforts to address these issues, as distinct from acknowledging that a given issue as a problem in the abstract.

Through its discussions, the RRG developed the following list of potential problems and opportunities in this category:

a. Information, Incentives, and Cost Recovery.

This general sub-category of issues can be further separated into three areas:

(i) Issues related to recovery of fixed costs of the transmission system:

Some participants expressed the view that the underlying problem in this area is that we use short-term transaction charges to recover part of long-term costs. There is no correlation between marginal cost of transactions and the charges assessed. An hourly transaction with no incremental transmission cost will nevertheless be required to pay a transmission service fee. On the other hand, transactions whose incremental cost is greater than the embedded cost charge will not pay their full incremental costs.

(ii) Issues associated with short-term or operational considerations (congestion management):

Participants expressed views on two general problems related to this area: (1) at times there is unused capacity that customers would want to use if they could get access to it; and (2) when the system is overloaded, we cannot always count on the effectiveness of tools we use currently to manage congestion. On the latter point, one participant offered an example of a recent incident in which the transmission provider cut all transmission schedules to zero to deal with an overload, and still there was no reduction in line loading. The incident reflects problems with the contract path regime we currently use for scheduling transmission service, in which the actual flows resulting from the dispatch of a particular resource do not correspond to the "contract path" over which the energy is scheduled.

(iii) Long-term infrastructure issues.

Discussions in this area focused on two main areas: (1) incentives to consider the transmission effects in locating new supply resources and (2) incentives for and cost recovery of system expansion (*i.e.*, incremental) costs. A number of participants suggested that the root problems stem from lack of adequate and transparent information (available on equal basis to all) and a lack of mechanisms to see that appropriate actions are taken in response to valid information. A related concern is whether the recipient of the information will understand what it means.

One participant observed that economic efficiency issues relate to all three areas identified above. Our current approach to cost recovery, as well as our current mechanisms for managing congestion on the system, does not provide signals that tell the transmission system user whether it is using a congested part of the system. Once there is a problem, a transaction simply gets "bumped." Some participants believe that this leads to inefficient dispatch of existing resources (at least sometimes and in some places). A lack of information and matching incentives also does not provide clear signals about the most beneficial locations for new resources. As one participant put it, "there seems to be no way to rationalize capacity on the system (at least not easily)." Another participant urged that the right question to ask in view of these issues is: "Can we make changes that will improve the efficiency of the system as a whole?"

Consensus: These are all issues that should be addressed (opportunity for improvement) (some reservation on this point with respect to various sub-issues), but the consensus did not necessarily extend to the questions of how to do it, or whether "better price signals" or a certain kind of price signal would be the right answer.

b. Problems with dealing with multiple transmission systems/providers.

(i) Rate pancaking (affect access for generators and access for load).

(ii) Many transactions must be arranged with multiple service providers ("transactional pancaking").

(iii) Impact on wholesale energy markets (options available; ability to complete economic transactions; resource development; long-term power contracting).

(iv) Sub-optimal operating and planning solutions.

(v) Effect on diversity of resource options (especially resources remote from load).

Consensus: This general category of problems warrants action (although not necessarily each sub-category listed above).

5. Ancillary Services.

a. Workable markets for imbalance energy and ancillary services are needed both for those buying and those selling energy (including demand response). Not all parties have adequate access to workable markets to meet their needs for ancillary services, and some potential suppliers with the technical ability to provide certain ancillary services are not allowed to under our current tariff/market structure.

b. Current ancillary service market arrangements do not deal effectively with transmission capacity implications.

c. The limited number of suppliers raises concerns about market power in ancillary services.

d. There are opportunities to use the resources each control area sets aside to follow load more efficiently.

e. There are also opportunities to use contingency reserve resources more efficiently (or more cost effectively).

Consensus: These are problems and opportunities that warrant action.

6. Losses; loss methodology.

a. Problem: The current loss methods for assigning and collecting system losses to transactions are not aligned with the actual loss effects created by those transactions. This mismatch between assigned losses and loss effects involves both the quantity assigned and the value of the loss energy supplied.

b. Examples of inefficient outcomes due to current practices:

(i) System dispatch and investment is more costly than necessary when resources are not used or are not developed because they are charged for greater losses than they actually create on the system.

(ii) Sometimes dispatch changes that would reduce system losses don't occur because there is no way to provide a signal that will encourage transactions that reduce losses.

c. Is there an opportunity for a more consistent methodology?

At least one participant emphasized the importance of being able to know in advance what system users will be charged for losses

Consensus: We should explore whether there are different ways to approach losses to lead to more efficient outcomes.

B. Operational and Reliability Concerns:

Summary of Discussions:

1. Underlying Problem:

With respect to the issue of how heavily we are using the current system, and what the implications are for risk of system failure, we don't have a good mechanism to make regional decisions about whether we do or don't have a problem and what we should do about it.

Background: Over time, we are using the system we have more heavily than we did in the past, so that there are now reduced margins as compared to the past. Increased usage has been enabled by better system modeling. As operating margins decline however, the need for effective, quick-responding operating tools increases. Outage risks must be balanced against the economic costs of avoiding those risks. The challenge is to measure the degree of system use that can be permitted without unreasonable exposure to system failure.

2. Operational Control Issues:

a. We have poor tools for managing overloads on the system. There are conflicts among different operators' existing curtailment procedures and curtailment procedures often ineffective for managing flows.

b. There is a need for a more efficient method for managing loop flow.

c. Fragmented operations (multiple control areas) produce a lack of system-wide visibility in day ahead.

d. The security coordinator can't see all the needed data to monitor system conditions. Data available is limited the contractual relationships with the control areas that created the coordinator security. Some data is limited by confidentiality or by a lack of a contractual relationship with market participants that are not control area operators.

e. There is no process for financial settlement of redispatch used to address reliability issues in real time.

f. Generation response to curtailments or other actions when system is stressed are unpredictable. There is a weak linkage between changes in schedules and actual changes in physical generation.

4. Use of net load versus gross load for calculating reserve determinations with respect to load "behind the meter."

5. There is currently a problem of setting reliability standards without looking adequately considering cost consequences.

a. Is a standard reasonable in terms of cost for benefit gained? Are unintended consequences of new standards considered?

b. Where does the burden of implementing the standard belong (effect on use of the system)?

c. How are the preferences of system users taken into account?

6. Over-reliance on short-term and non-firm use of the system.

C. Obstacles or Uncertainties Associated with Long-Term Investment:

Summary of Discussions:

In today's environment, the planning processes must be different from the traditional approach centered on vertically integrated utilities. We don't yet have a good regional mechanism to compensate the fact that we no longer have the entire system planned by vertically integrated utilities – information, knowledge, investment responsibility, etc. are no longer residing in a single entity. A workable new process must recognize the multi-dimensional aspect of (a) the issues to be considered and (b) the number of decision makers involved in the various phases of investment, regulation, and operation of the transmission system. For the system to be expanded, there must be adequate incentives and cost recovery for investors as well as a process for equitable collection of expansion costs from those who benefit from investment. The relevant knowledge base, which is currently held by only some market participants, must be available to all on an equal basis to guide regional decisions and good investment policies.

1. Adequacy standards and infrastructure

a. Meeting adequacy needs to include all options – generation, transmission, and DSM

b. Is there a need for clarification n state role in transmission and generation adequacy?

c. What is the appropriate manner to address reserving transmission capacity for future load growth?

d. Over time, the system has gotten "tighter" – unintended loss of margin or flexibility in the system because of economic pressures. The challenge is to secure sufficient investment to meet growing needs while continuing to meet reliability standards.

e. Changing incentives – open access eliminates the strategic advantage conferred in the past by transmission ownership. As a result, there is little incentive to use scarce capital to build transmission, especially where expansion will provide generalized regional benefits for economy energy trade. Also, the incentives now tend to encourage building just for near-term needs.

f. There is an opportunity to make investments for reliability on a more coordinated, regional basis.

2. Infrastructure investment.

a. There is a need to ensure that sufficient and timely investment is made in the transmission system to serve load growth, to provide capacity to new users, and to alleviate congestion.

b. We have multiple planning processes but limited construction progress.

c. Lack of access to capital leads to over-use of short-term measures. A contributing factor may be uncertainty concerning cost recovery.

d. We need better information (and to make better use of the information we have) – the information doesn't make the decision; it helps us make better decisions.

3. Cost recovery.

a. There is uncertainty about regulatory support for and method of recovery (and complexity added by multi-jurisdiction environment).

b. There is a need for the right people (benefiting parties) to pay for system improvements.

4. Dimensions of fragmentation that can act as obstacles to effective planning or to infrastructure investment:

a. Multiple owners/investors and "pieces" of the power system (loads, transmission, generation)

(i) Example 1: We face uncertainty about what generation will be built and where it will be delivered (and it can change hourly, daily, seasonally).

(ii) Example 2: There is a disconnect between the ability to identify needed solutions and the ability to implement the solutions.

(iii) Example 3: Order 888 generation interconnection queuing does not facilitate an integrated look at resource mix and transmission system implications – recent FERC interconnection orders may help some on this.

(iv) Another issue: What are the monopoly franchise obligations under today's circumstances?

b. Multiple jurisdictions

c. Solutions that straddle multiple systems may be difficult to implement

d. Different time frames

e. Multiple solutions

Given the "curse of the commons" (i.e., all interconnected parties are affected to a degree by the decisions of others), when is decentralized decision making possible? How do decisions affect other users of the common transmission system? Combined effects of actions need to be examined, because the sum of individuals' perceived risk is not the same as the combined risk.

5. **Accommodation of technology innovation (and need for environment that fosters innovation).**

6. **Interregional (seams) issues with respect to planning.**

7. **We need good mechanisms to manage uncertainty/future risks.**

Consensus: We need to look at whether there are ways to do this better – planning is an issue – how all the sub-issues fit together is something for further exploration.

D. Implementation Issues and General Concerns; Constraints on Solution Sets:

Summary of Discussion:

The issues identified below are generally things that will come up, or will need to be taken into consideration, when the process moves from its initial steps (related to identification of problems and opportunities) to exploring potential solutions.

1. Political and regulatory uncertainty.

2. Seams (within the region and across the interconnection).

3. How to analyze cost/benefit and risk considerations, and who does the analysis?

4. Staging or phasing of implementation.

5. Recognizing Canadian sovereignty.

6. Contract enforceability (existing rights holders of all kinds).

   a. For example, some customers feel they lack an effective remedy to deal with problems under current transmission service contracts.

7. Liability issues.

8. We need to ensure that adequate transmission capacity is dedicated to moving power to serve regional retail loads [and in a manner that does not require load-serving entities to obtain transmission through competitive bidding].

9. Credit issues – how to manage exposure of service providers and suppliers to risks of nonpayment (especially imbalance and congestion charges in real time).

10. Concerns about shifting to rely more on price signals (potential cost shifts; moving away from cost-based service approach; volatility; etc.).

11. Differences among state laws concerning franchised (exclusive) service territories.

12. Security/Critical Infrastructure:

    a. Cyber and physical security requirements are coming from two directions: DOE and Department of Homeland Security (DHS). These requirements will affect non-federal and federal RTO West participants.

    b. BPA has established criteria that it used to determine its own critical facilities and other PTOs may be required to do the same. As the requirements for these facilities become clearer, are there unique obligations for these critical facilities that should be the responsibility of RTO West?